NORE (Network of Orthopaedic Registries of Europe) an EFORT standing committee NIMAC symposium

Engaging with the new EU regulatory landscape for medical devices.

Challenges and opportunities

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Session 3: What to do next, quality and safety for future patients

The future from the eyes of a surgeon who is also connected to a manufacturer

When therapeutic choices include implantable devices what primarily count is:
• Safety of the implant
• Performance to be evaluated both as therapeutic efficacy and efficiency
• Degree of patient satisfaction
MDR aims to…

- **Patients**
  - Significant changes to product introduction
  - Risk reduction and monitoring via premarket scrutiny and post market surveillance
  - Increased evidence (premarket, clinical and technical) for approvals
  - To improve quality and safety of medical devices for patients
  - It is closely aligned with device effectiveness/performance
  - To increase in market safety and monitoring
  - Monitoring and compliance through product lifetime
  - Make public health information accessible

- **Products**
  - Improved quality, more evidence of safety and performance, removal of restricted substances, supply chain assurance

- **Transparency**
  - Move away from the major incidents with devices in the past, assurance that the products are safe, perform as intended and high quality
Under the **MDD**: manufacturer could certify met technical requirements and place on the market

Under the **MDR**: manufacturers **MUST** provide evidence on clinical benefit to patients

Rules to be fulfilled in order to CE mark a medical device and make it available on the CE-recognizing markets

Stands alone, not following FDA or other bodies
Risk Benefit Assessment to the patient

*Manufacturers must:*

Prove reduced patient risk *as much as possible* pre-market

Continuously assess the risks and anticipated benefits post launch throughout product lifecycle

Provide overall evaluation of *acceptability of the benefit/risk profile* (incl different patient populations)
- **MDR is a regulatory and compliance issue, but has implications across the Lifecycle of a Product**

**Quality** - quality manuals (QMs) and standard operating procedures (SoPs)

- Documentation of device components in tech file (similar to Bill of Materials)
- More rigor/justification for restricted substances, clinical data, design dossier
- Increased requirements for content in the clinical evaluation reports (CERs)
- More restriction on the use of equivalency
- Increased clinical data requirements for implants/List of well-established technologies/Existing products
- Upclassification

**R&D Discovery**

- Labeling/UDI—new requirements driving changes
- Notified Body audits
- Implant cards/exceptions list

**Manufacturing/Distribution**

- Re-registration requirement resulting from label changes
- Increased supply chain continuity risk
- Lifecycle requirements
- Notifications in Database
- Supply chain requirements/obligations

**Commercial**

- Brand strategy
- Portfolio review
- Cost of compliance
- Revised global launch strategies

**Customer**

- Strategic implications
- Portfolio rationalization

**Post Market**

- Manufacturers report AEs within 2-10-15 days (based on severity)
- Extended safety monitoring and PSURs
- Need for post-market clinical data
- Euamed database (lifecycle)

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**The MDR has Implications Across the Whole Product Lifecycle**

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Explore, Engage, Execute ...Further
Actual main sources for Performance demonstration

Clinical investigations (including RCTs) and PMCFUs

Registries (when available)

Actual main sources for Safety demonstration

Clinical Investigations (including RCTs) and PMCFUs

Registries (when available)

All PMS data including complaints
Sustainability

ADEs and SADEs detection some Registries are probably tailored form a numeric point of view to provide meaningful informations for relatively common AEs (1 to 0.5% occurrence rate)

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Source: Safety requirements for the first use of new drugs and diagnostic agents in man. Geneva CIOMS(WHO) 1983

What about patient satisfaction?

Registries will not limit to record revisions only but start to introduce regular scheduled FUs to capture clinical outcome and PROMs?
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- **Effective**
- **Tolerance (worst case)**

### Pairs of fellows needed for Controls

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### Operators needed for telefon FU

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Patient Reported Outcome Measurements

• A Patient-Reported Outcome Measurement (PROM) is a health outcome directly reported by the patient who experiences it.

• PROMs measure a patient’s health status or health related quality of life at a single point in time.

• Traditional PROMs may be over 40 questions long. A reliable system, customized to the patient that uses less questions has been developed, validated and is available...
Innovation in PROMs for TKA patients

PROMs collected using an electronic tool (smartphone) and sent to the surgeon’s computer…

- App
- Built using PROMIS knowledge
- Administered using Computer Adaptive Tests (CATs)
  - Physical Function CAT
  - Pain Behaviour CAT
  - Pain Interference CAT
  - Depression CAT
What is the Patient-Reported Outcomes Measurement Information System®? (PROMIS)

• Developed and evaluated using state-of-the science psychometric methods funded by the NIH.
• Measures used to evaluate and monitor physical, mental, and social health.
• Relevant across all conditions – they are not disease specific.
• Scores on one metric – gives a score between 20 and 80.
 COMPUTER ADAPTIVE TESTS (CATs) on the app

• Individually tailored electronic questionnaires
• Focused on a single domain
• Next item administered from item bank depends on previous answers
• Typically 5-7 questions.
Think of it as intelligent questioning...

If this person says they cannot walk 1 mile without pain, there is no need to ask any questions related to sport etc.

The focus is on calibrating just how bad their pain interference is...

Compare this to traditional PROMs where every question must be asked...
Moticon’s OpenGo

Each insole contains 14 sensors
- 13 capacitive pressure sensors
- 3 accelerometer

3 component categories
- SENSOR INSOLES
- SOFTWARE
- ACCESSORIES

Operation overview
- LIVE: Data streamed in real time
- RECORDING: Data stored for later Bluetooth transmission
- SLEEP: Energy conservation when not in use

What does the sensor insole measure?

- PRESSURE
- WEIGHT
- BALANCE
- MOTION

http://www.moticon.de/products/physio-pro-sports#physio-pro-sports-overview
Sensor overview
Each sensor insole contains 13 capacitive pressure sensing pads and a 3D accelerometer for measuring motion. The sensor data is processed in the embedded microsystem. From this raw data, a variety of essential gait and motion parameters are computed.

What does the sensor insole measure?

- Pressure
- Weight
- Balance
- Motion

http://moticon.de/products/science-research
Conclusions: how may the future look like?

• No «fit for all» single solution

• No need to duplicate data with a different methodological approach if data already exist

• Patients’ own appreciation unavoidable

• Take into account overall sustainability (financial and human resources) of the projects

• Exploit new technological approaches to generate evidence

• Evidence will possibly be generated by a well balanced mix of different approaches each conceived and properly weighted in the Critical Appraisal Process